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ALBERTA MOTOR GASOLINE SURVEYS

1952

J. S. Charlesworth, G. Rymer and E. Tipman



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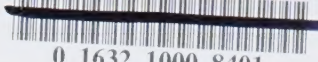
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A study of the quality of gasolines sold throughout the Province of Alberta has been made each year since 1939 by the Research Council of Alberta. From the results obtained, five reports have been published.* This report covers the detailed information on the quality of gasoline sold during the winter of 1951-52 and the summer of 1952. During this period 175 samples were tested.

In order that the gasoline should truly represent the material available to the motoring public, all samples were obtained from retail outlets in various districts throughout the Province. The sampling was carried out by Government Inspectors through the kind cooperation of the Inspection Service Branch of the Attorney General's Department. All samples were purchased at regular retail prices.

Alberta Standard Specifications for Gasoline provide for the classification of samples into four groups, namely, Premium grade, Regular grade, and for each of the foregoing, Summer grade and Winter grade. Test data for these groups are tabulated separately in the report and for comparative purposes, specification values are listed with each table. A complete copy of the current Alberta Standards for Gasoline, as listed under the New Regulations of the Fuel Oil Licensing Act, dated July 5, 1951, is given as an appendix to this report.

Test data in this report are based on the latest standard test procedures of the American Society for Testing Materials (A.S.T.M.). They

* Alberta Motor Gasoline Surveys 1939 to 1947. R.C.A. Mimeographed Circular No. 2.
Alberta Motor Gasoline Surveys 1948. R.C.A. Mimeographed Circular No. 4.
Alberta Motor Gasoline Surveys 1949. R.C.A. Mimeographed Circular No. 8.
Alberta Motor Gasoline Surveys 1950. R.C.A. Mimeographed Circular No. 9.
Alberta Motor Gasoline Surveys 1951. R.C.A. Mimeographed Circular No. 11.

are as follows: Octane number, A.S.T.M. Method D-357, (otherwise known as the motor method); Tetraethyl lead, A.S.T.M. method D-526; Reid vapour pressure, A.S.T.M. method D-323; Gravity at 60 degrees Fahrenheit in degrees A.P.I., A.S.T.M. method D-287; Distillation range in degrees Fahrenheit on a basis of percentage evaporation, A.S.T.M. method D-86; Sulphur content, A.S.T.M. method D-90; Gum content, A.S.T.M. method D-381; Corrosion, A.S.T.M. method D-130.

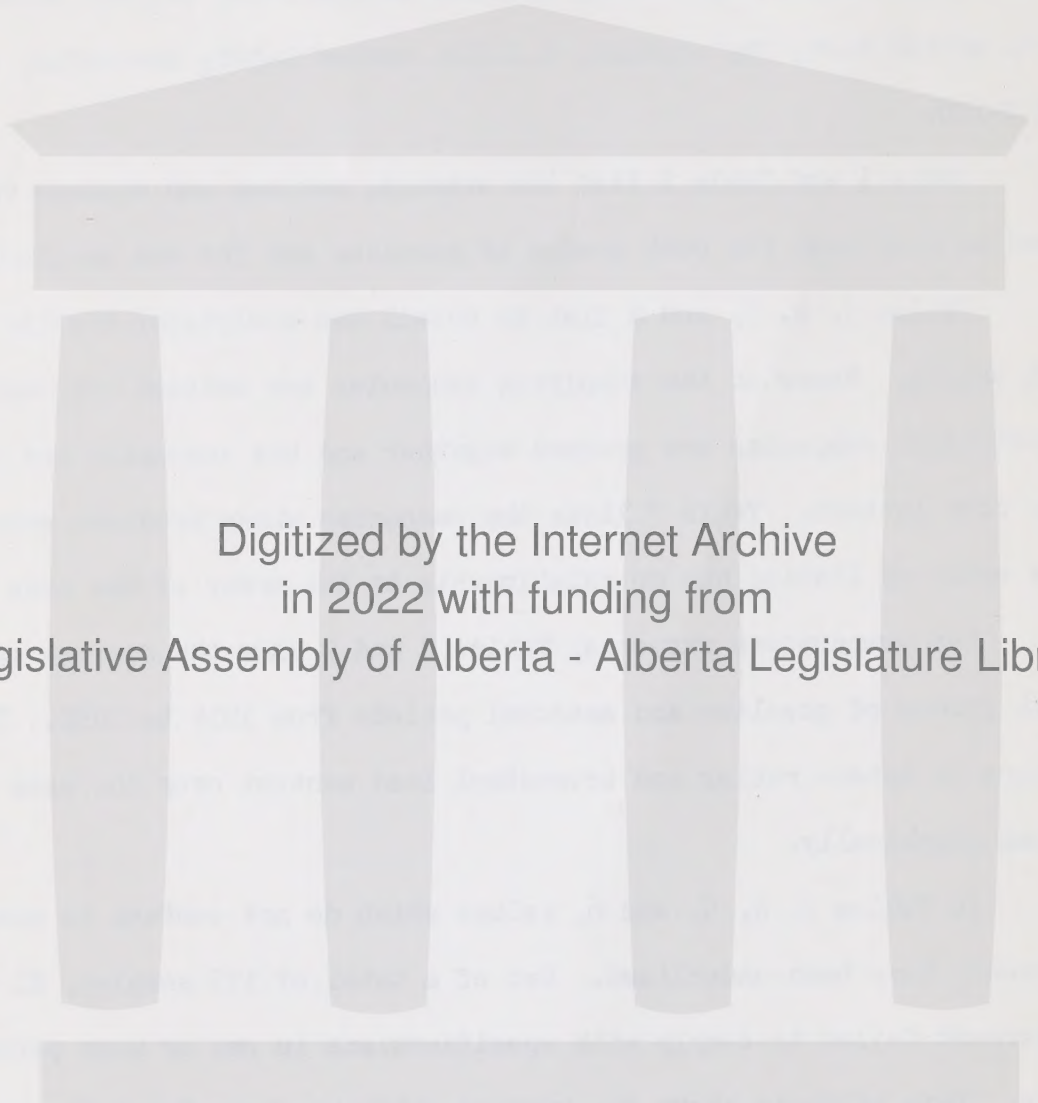
Table 1 and Table 2 list the average, maximum and minimum values obtained on each test for both grades of gasoline and for the seasonal periods.

Tables 3, 4, 5, and 6 list in detail the analytical results obtained on each sample. Names of the supplying companies are omitted but samples from individual companies are grouped together and the companies are indicated by code letters. Table 7 lists the companies whose products were sampled but the order of listing has no relationship to the order of the code letters.

For comparative purposes, Tables 8 and 9 show the average analysis for both grades of gasoline and seasonal periods from 1939 to 1952. The variations in octane rating and tetraethyl lead content over the same period are shown graphically.

In Tables 3, 4, 5, and 6, values which do not conform to standard requirements have been underlined. Out of a total of 175 samples, 21 samples or 12 percent failed to comply with specifications in one or more particular respects. This value is about the average which has been found for the last several years. No failure noted was considered to be of a serious nature and no failures were found under the sulphur, corrosion or freezing point tests.

In some cases, solvent oil is added to gasoline as a solvent or top cylinder lubricant. In the standard A.S.T.M. gum test, the solvent oil remains with the gum in the form of a mixed residue. In such cases when



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solvent oil has been suspected of being present in any sample mentioned in this report, no attempt has been made to separate them. The results so obtained are described separately as "gum plus oil".

TABLE 1.
Summary of Analytical Data
Winter Gasolines 1951-1952

Test	Premium Grade Gasoline				Regular Grade Gasoline			
	Spec.	Ave.	Max.	Min.	Spec.	Ave.	Max.	Min.
	Total Samples 53				Total Samples 52			
Octane Number	Min. 76	78.0	81.9	76.3	Min. 72	74.7	77.5	72.5
Tetraethyl Lead	Max. 3.6	2.46	4.41	0.81	Max. 3.6	1.31	2.26	0.61
Vapour Pressure	Max. 13	10.6	12.1	8.6	Max. 13	10.8	12.3	9.7
Gravity		62.1	63.6	59.3		61.7	63.8	59.4
Distillation Range								
I.B.P.		98	117	84		99	118	85
10%	Max. 130	123	134	115	Max. 130	125	133	115
50%	Max. 250	223	242	203	Max. 250	230	251	216
90%	Max. 370	338	370	324	Max. 370	334	367	314
E.P.		399	431	378		390	409	377
Sulphur	Max. 0.15	0.06	0.13	0.03	Max. 0.15	0.06	0.12	0.03
Gum	Max. 7	1.5	5.8	0.2	Max. 7	1.1	4.0	0.2
Corrosion	Neg.	Neg.			Neg.	Neg.		
Freezing Point	Max. -60	Pass			Max. -60	Pass		
Colour	Red	Red				Bronze		

TABLE 2.
Summary of Analytical Data
Summer Gasolines 1952

Test	Premium Grade Gasoline				Regular Grade Gasoline			
	Spec.	Ave.	Max.	Min.	Spec.	Ave.	Max.	Min.
	Total Samples 35				Total Samples 35			
Octane Number	Min. 76	78.8	80.8	77.2	Min. 72	76.2	77.6	74.7
Tetraethyl Lead	Max. 3.6	2.81	3.58	0.65	Max. 3.6	2.08	2.86	0.48
Vapour Pressure	Max. 10	8.6	10.6	7.7	Max. 10	8.3	9.9	7.1
Gravity		60.4	61.5	58.0		59.7	62.2	57.3
Distillation Range								
I.B.P.		101	118	91		100	118	91
10%	Max. 155	132	141	120	Max. 155	137	151	125
50%	Max. 260	234	257	216	Max. 260	242	261	213
90%	Max. 370	343	356	307	Max. 370	345	363	316
E.P.		396	418	365		392	421	363
Sulphur	Max. 0.15	0.07	0.10	0.03	Max. 0.15	0.06	0.11	0.03
Gum	Max. 7	2.4	9.0	0.6	Max. 7	1.4	8.0	0.2
Corrosion	Neg.	Neg.			Neg.	Neg.		
Freezing Point	Max. -60	Pass			Max. -60	Pass		
Colour	Red	Red				Bronze		

TABLE 3

Data of Gasoline Survey Analysis
Premium Gasolines - Winter 1951-1952

Co.	Octane No.	Tetra-Ethyl Lead	Vapour Pressure	Gravity	Distillation Range					Sulphur	Gum
					I.B.P.	10%	50%	90%	E.P.		
Alberta Specifications											
	Min. 76	Max. 3.6	Max. 13			Max. 130	Max. 250	Max. 370		Max. 0.15	Max. 7.0
C	76.8	1.08	12.0	60.6	97	122	235	361	396	0.07	1.8
C	76.3	1.26	12.1	60.5	93	119	234	361	400	0.10	1.6
C	76.9	1.03	11.7	60.9	97	118	232	349	403	0.08	2.8
C	76.9	1.24	11.6	60.7	97	123	237	352	403	0.07	1.4
C	78.1	0.98	11.1	60.6	116	134	239	342	404	0.07	1.6
C	78.4	1.17	11.0	61.2	117	129	235	339	398	0.07	2.8
C	78.3	1.03	11.2	61.2	102	122	231	343	394	0.05	1.8
E	77.2	2.08	10.6	63.3	94	122	209	332	395	0.05	0.4
E	78.8	2.42	9.8	62.6	88	124	218	331	398	0.04	0.8
E	78.9	3.17	10.1	60.7	112	127	237	349	407	0.06	2.0
E	79.7	3.12	11.0	62.0	98	122	233	344	398	0.06	1.6
F	77.9	2.21	10.5	63.3	105	126	207	337	395	0.05	0.8
F	81.9	4.41	11.9	62.5	97	123	229	336	399	0.09	5.8
G	77.3	2.22	10.6	63.1	108	126	206	330	394	0.04	0.4
H	77.2	1.99	10.4	59.3	86	115	203	327	391	0.04	0.2
I	77.6	2.22	9.8	62.7	101	125	211	329	394	0.04	0.6
I	76.4	2.78	10.6	61.5	95	123	228	353	399	0.06	0.8
I	77.0	3.98	10.4	61.6	91	118	241	341	401	0.04	1.6
I	78.0	3.47	10.9	61.6	104	121	241	347	397	0.07	1.6
I	79.4	3.57	10.3	61.3	86	117	241	350	400	0.07	2.0
I	79.2	3.38	10.8	61.5	92	119	242	355	408	0.07	2.2
I	79.4	3.42	11.2	61.7	84	116	240	348	401	0.06	1.0
I	80.0	3.08	10.2	62.4	91	123	221	335	410	0.03	1.8
I	78.5	4.41	11.8	62.4	100	119	235	352	399	0.07	1.4
K	77.6	2.45	10.6	63.4	101	125	208	338	393	0.05	1.0
K	79.8	3.11	11.3	63.0	114	130	216	336	396	0.05	2.0
K	79.5	2.63	10.1	62.8	96	124	213	330	393	0.05	0.6
K	77.2	2.02	10.7	62.6	86	124	225	324	378	0.07	1.4
L	77.8	2.63	10.5	63.6	94	122	207	341	394	0.05	1.4
L	77.6	2.07	10.4	63.1	95	123	212	338	395	0.05	2.8
L	76.9	2.36	9.6	62.0	99	132	222	351	431	0.05	*
L	77.4	2.09	10.5	62.0	91	121	209	335	396	0.06	1.4
L	77.3	3.14	11.5	61.6	96	124	237	352	397	0.07	3.4
L	76.8	2.11	10.2	62.6	103	123	209	341	406	0.05	0.2
L	77.1	2.17	10.3	62.8	92	119	211	325	395	0.05	1.6
L	77.5	2.16	8.6	61.9	102	132	216	332	404	0.04	1.2
L	77.1	2.04	10.3	63.2	86	121	212	331	403	0.04	0.6
L	77.6	2.19	10.6	63.1	111	127	212	333	395	0.06	1.8

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Table 3 (cont'd)

Data of Gasoline Survey Analysis

Premium Gasolines - Winter 1951-1952

Co.	Octane No.	Tetra- Ethyl Lead	Vapour Pres- sure	Gravity	Distillation Range					Sulphur	Gum
					I.B.P.	10%	50%	90%	E.P.		
Alberta Specifications											
	Min. 76	Max. 3.6	Max. 13			Max. 130	Max. 250	Max. 370		Max. 0.15	Max. 7.0
L	77.8	2.13	10.5	63.3	84	117	208	334	397	0.05	1.0
L	77.2	3.07	10.6	61.0	99	123	236	344	392	0.06	2.0
L	77.7	2.09	10.4	63.0	92	122	211	336	397	0.06	2.6
L	77.6	2.08	10.2	62.9	96	126	211	334	402	0.03	0.6
L	77.8	2.88	10.5	61.9	102	123	226	341	396	0.06	0.4
L	77.6	3.30	10.5	61.2	91	121	241	345	397	0.09	4.0
L	79.8	2.63	11.5	62.9	106	128	213	331	400	0.05	0.6
L	79.9	3.02	10.4	62.3	95	130	231	331	394	0.05	0.6
M	77.8	2.07	10.5	63.1	92	120	210	338	395	0.05	0.6
M	76.3	2.08	10.4	62.9	96	121	222	326	384	0.07	0.2
M	78.3	2.81	8.8	59.7	93	128	237	346	398	0.13	1.4
N	79.7	2.72	10.0	62.4	112	130	214	332	394	0.05	2.0
R	77.7	2.61	9.7	62.8	104	126	211	340	400	0.03	0.6
V	77.1	0.81	11.9	60.0	112	132	241	370	428	0.08	3.2
W	78.8	2.95	11.0	63.6	94	122	219	326	385	0.07	1.4

* Determined Value 12.2 "Gum plus oil".

Table 4 (cont'd)

Data of Gasoline Survey Analysis

Regular Gasolines - Winter 1951-52

Co.	Octane No.	Tetra- Ethyl Lead	Vapour Pres- sure	Gravity	Distillation Range					Sulphur	Gum
					I.B.P.	10%	50%	90%	E.P.		
Alberta Specifications											
	Min. 72	Max. 3.6	Max. 13			Max. 130	Max. 250	Max. 370		Max. 0.15	Max. 7.0
L	74.3	1.13	10.2	62.2	85	126	229	321	389	0.03	0.4
L	74.6	1.20	10.8	63.1	107	132	226	322	383	0.04	2.4
L	74.1	2.04	9.9	61.1	98	<u>125</u>	244	343	390	0.05	1.2
L	74.4	1.29	10.7	62.9	92	123	222	322	389	0.05	0.6
L	74.0	1.07	10.9	63.2	90	124	223	321	391	0.04	0.2
L	74.9	1.38	11.0	63.4	100	124	222	317	382	0.04	0.2
L	74.3	1.83	10.9	61.8	87	115	240	337	390	0.05	1.6
L	75.7	1.21	11.2	63.9	118	133	216	318	388	0.04	0.2
L	76.2	<u>1.44</u>	10.5	62.6	94	<u>127</u>	222	338	394	0.03	0.8
M	74.1	1.03	11.4	63.0	90	120	225	324	386	0.03	0.2
M	74.0	1.58	10.2	61.5	98	130	238	335	385	0.07	0.6
M	74.9	1.42	9.8	60.6	91	126	240	346	399	0.12	0.6
R	74.7	1.33	9.8	62.6	102	126	217	331	389	0.12	0.2
R	75.9	0.86	10.5	63.5	110	130	217	330	386	0.03	1.2
V	73.3	1.02	11.6	60.0	116	133	239	355	393	0.10	1.6
W	74.0	1.15	9.7	61.7	95	<u>126</u>	230	333	390	0.07	1.4

TABLE 5

Data of Gasoline Survey Analysis

Premium Gasoline - Summer 1952

Co.	Octane No.	Tetra-ethyl Lead	Vapour Pressure	Gravity	Distillation Range					Sulphur	Gum	Gum + Oil
					I.B.P.	10%	50%	90%	E.P.			
Alberta Specifications												
	Min. 76	Max. 3.6	Max. 10			Max. 155	Max. 260	Max. 370		Max. 0.15	Max. 7.0	
C	79.1	3.40	9.0	61.5	96	124	235	322	369	0.10	1.2	
C	78.2	3.15	9.1	61.4	95	134	238	322	371	0.10	1.6	
C	78.1	0.65	10.2	60.8	95	124	231	355	411	0.08	1.8	
C	77.5	2.95	9.3	61.8	94	129	234	322	372	0.10	1.2	
C	77.6	0.98	7.7	60.5	93	125	234	351	407	0.07	2.6	
C	77.2	1.83	8.3	61.0	94	125	231	307	365	0.09	1.0	
E	78.4	3.16	8.1	60.6	98	133	230	347	400	0.06	0.8	
F	80.8	3.20	7.7	58.4	102	141	252	350	397	0.06	1.2	
F	80.2	2.95	8.6	58.8	96	132	248	353	417	0.06	9.0	
F	80.0	2.30	8.0	58.0	99	137	247	354	402	0.05		4.8
F	80.4	1.92	7.7	60.1	118	141	241	345	397	0.04		4.4
H	79.1	2.86	8.3	61.4	98	131	220	344	410	0.07	2.4	
I	78.4	3.37	8.6	59.6	97	128	245	356	400	0.09	4.2	
I	78.2	3.14	8.8	60.0	104	130	245	354	399	6.08	3.6	
I	78.3	3.20	8.7	58.8	96	126	242	343	396	0.08		8.4
I	80.6	3.18	8.3	60.0	100	134	218	342	405	0.04	0.8	
I	80.0	3.40	8.0	61.4	115	138	218	343	399	0.05	0.6	
K	77.9	2.74	9.6	60.8	98	134	237	332	383	0.08	0.8	
K	78.2	2.71	8.5	60.4	94	137	228	340	378	0.06		7.2
K	80.5	3.40	8.2	61.4	91	129	216	341	397	0.05	1.4	
K	80.4	3.52	8.1	61.4	96	132	220	340	398	0.05	0.8	
K	77.4	2.75	8.3	59.7	100	143	243	334	382	0.07		4.8
K	75.3	2.47	8.4	59.1	99	139	241	327	366	0.04	2.2	
L	78.8	3.32	8.8	59.9	94	122	243	356	400	0.09	3.8	
L	79.9	3.49	8.2	60.9	97	134	225	348	402	0.04	2.6	
L	77.5	3.44	8.1	58.9	101	136	257	368	418	0.09		48.0
L	77.5	3.58	8.2	60.3	101	132	242	355	398	0.09	2.8	
L	77.7	3.29	8.1	59.8	95	130	243	352	402	0.09	3.8	
L	77.3	3.52	8.6	60.4	95	127	238	355	400	0.09	3.4	
L	79.4	2.96	8.9	61.5	100	132	217	342	397	0.03	4.4	
M	79.6	2.99	8.7	61.0	92	131	228	342	394	0.05	4.4	
M	79.8	2.68	8.4	61.2	96	130	221	343	401	0.05	0.6	
M	77.5	1.23	9.5	60.7	108	132	235	345	402	0.07	1.4	
M	80.4	3.12	8.1	61.2	98	131	222	347	398	0.06		11.6
V	79.4	0.66	10.6	61.2	92	120	225	339	410	0.07	1.8	

TABLE 6

Data of Gasoline Survey Analysis

Regular Gasoline - Summer 1952

Co.	Octane No.	Tetra-Ethyl Lead	Vapour Pressure	Gravity	Distillation Range					Sulphur	Gum
					I.B.P.	10%	50%	90%	E.P.		
Alberta Specifications											
	Min. 72	Max. 3.6	Max. 10			Max. 155	Max. 260	Max. 370		Max. 0.15	Max. 7.0
C	75.0	2.42	9.1	62.0	98	132	232	319	367	0.08	0.6
C	74.9	0.48	9.8	59.9	96	127	239	359	399	0.09	2.6
C	75.9	2.82	9.2	62.2	95	131	230	316	363	0.08	0.8
C	75.1	0.74	9.5	60.0	92	128	242	353	399	0.09	8.0
C	74.7	1.83	8.5	62.0	94	127	213	324	376	0.10	2.2
E	76.7	2.51	7.7	59.5	98	140	245	346	399	0.05	0.2
F	76.8	1.85	8.1	57.6	100	139	260	357	399	0.05	2.6
F	77.2	2.07	8.2	57.3	95	138	261	363	421	0.05	5.0
F	77.6	1.77	8.2	57.6	98	139	257	360	401	0.03	3.0
F	77.5	1.20	7.6	57.9	118	144	247	349	406	0.03	*
H	76.8	2.11	7.6	59.9	100	139	238	348	397	0.05	0.2
I	77.2	2.83	9.0	59.0	98	132	250	343	391	0.07	1.2
I	77.1	2.74	9.1	60.3	109	133	250	344	388	0.06	2.6
I	76.8	1.89	8.1	59.8	98	136	236	348	404	0.04	0.2
I	75.9	2.06	7.7	59.2	118	144	243	353	401	0.06	0.6
K	75.6	2.19	8.6	60.3	109	146	239	319	365	0.06	0.6
K	75.6	2.14	7.7	59.6	99	144	242	321	365	0.04	0.2
K	76.6	1.88	8.2	59.7	91	133	240	350	394	0.04	0.8
K	76.4	1.99	7.7	59.2	99	138	242	350	393	0.05	0.4
K	74.5	2.14	7.1	59.1	102	151	245	324	370	0.06	0.6
K	75.2	2.38	8.3	59.3	93	138	243	330	370	0.05	0.2
L	76.9	1.92	8.2	60.3	107	138	233	348	404	0.05	0.2
L	76.5	2.70	8.6	60.0	100	132	248	347	396	0.06	1.8
L	77.2	2.86	9.0	60.2	95	125	247	345	388	0.06	0.6
L	75.5	2.48	8.2	59.7	103	140	253	347	392	0.05	1.2
L	75.6	2.71	8.6	59.1	92	132	258	357	383	0.06	2.2
L	75.4	2.50	9.0	61.2	98	130	244	339	383	0.07	2.8
L	77.0	1.83	8.2	60.8	95	133	228	339	391	0.03	0.2
M	76.9	1.91	7.8	59.3	97	139	243	352	403	0.06	0.2
M	75.8	2.04	7.6	59.3	97	139	244	353	399	0.05	0.2
M	75.3	0.95	9.9	60.7	101	127	236	345	400	0.11	3.6
M	76.8	2.25	7.5	59.1	100	141	222	355	406	0.06	1.2
S	76.9	2.14	7.4	59.0	102	141	245	356	404	0.04	0.2
S	76.8	2.07	7.3	58.8	112	143	245	355	402	0.05	0.2
V	76.7	2.51	7.7	59.5	98	140	245	346	399	0.05	0.2

*Determined Value 6.6 "Gum plus Oil".

TABLE 7

C O M P A N I E S

Alberta Hi-Way Refineries Limited
British American Oil Company Limited
Canada Western Distributors Limited
Canadian Oil Companies Limited
Gas and Oil Products Company Limited
Great West Distributors Limited
Imperial Oil Company Limited
Maple Leaf Petroleum Company Limited
McColl Frontenac Oil Company Limited
North Star Oil Company Limited
Renown Oil Company Limited
Shell Oil Company Limited
Stewart Petroleums Limited
Stockyard Gas and Oil Company Limited

TABLE 8
Seasonal Average Analysis

Premium Gasoline

1939 - 1952

Year	Octane Number	T.E.L.	V.P.	Gravity	Distillation Range					Sulphur	Gum
					I.B.P.	10%	50%	90%	E.P.		

SUMMER GASOLINES

1940	77.4		8.5	60.0	101	139	245	350	400	0.05	0.9
1941	76.6		8.5	60.3	92	133	246	354	403	0.05	1.7
1942	76.2		8.8			142	247	350		0.04	1.3
1943	77.0		8.5			138	248	357		0.07	2.2
1944	75.3		9.1			131	249	367		0.07	3.6
1945	74.1		7.1	59.6	98	138	241	352	401	0.04	3.4
1946	77.2		8.7	61.8	94	128	232	338	392	0.06	3.9
1947	75.9	2.70	7.7	60.4	96	137	238	341	396	0.06	2.7
1948	77.5	3.13	8.5	60.6	98	133	236	339	391	0.06	3.9
1949	75.6	2.35	8.6	60.3	95	133	235	341	401	0.05	4.7
1950	76.9	2.76	8.5	60.8	96	131	233	344	400	0.06	2.9
1951	77.0	2.29	9.0	61.0	98	133	230	342	397	0.06	2.4
1952	78.8	2.81	8.6	60.4	101	132	234	343	396	0.07	2.4

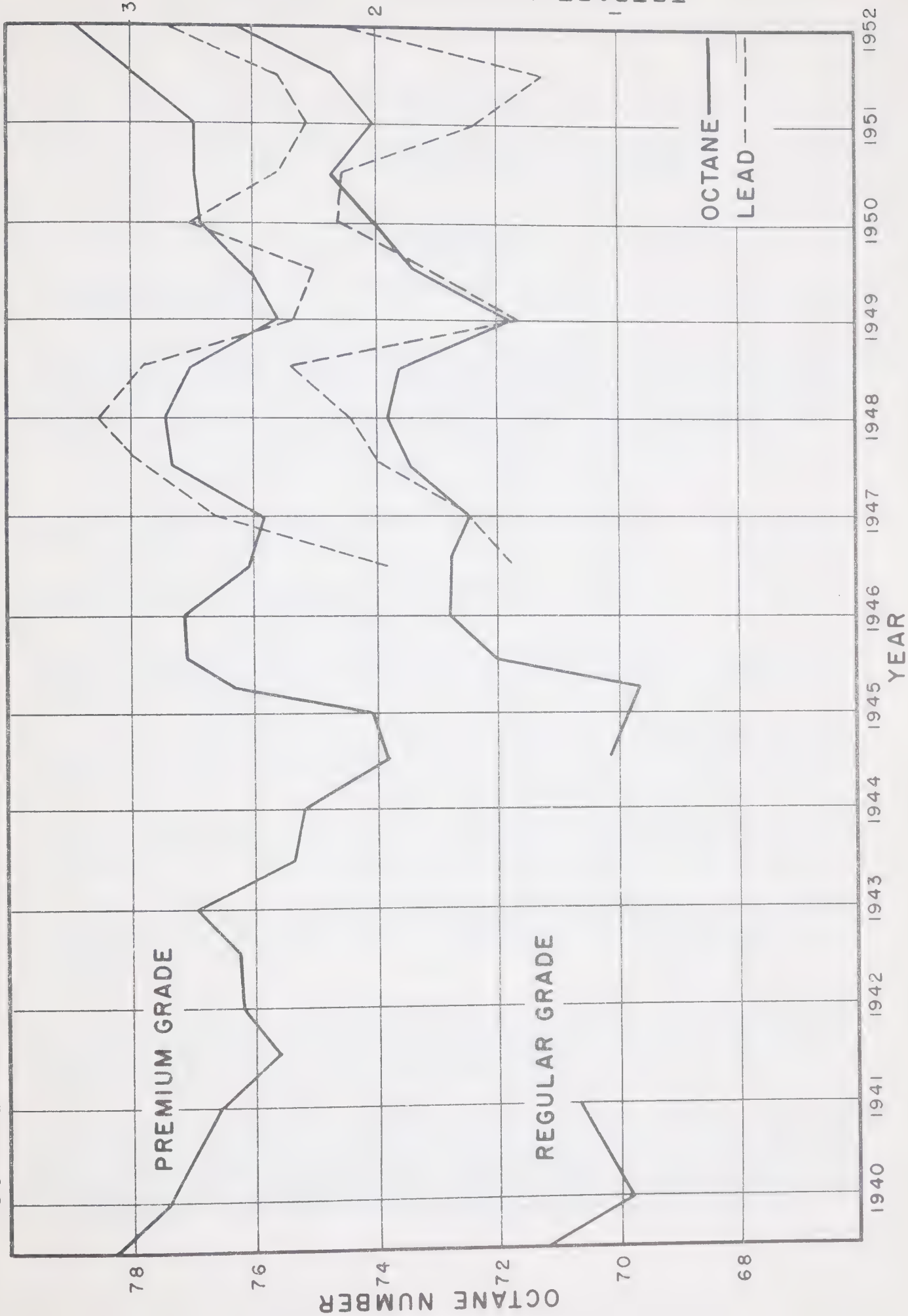
WINTER GASOLINES

1939-40	78.3		10.5	63.3	91	127	229	342	389	0.06	2.0
1941-42	75.6		10.6			131	240	340		0.04	2.2
1942-43	76.3		9.9			130	239	353		0.06	1.3
1943-44	75.4		9.2			131	251	364		0.04	1.4
1944-45	73.9		9.4	60.4	90	124	244	356	408	0.06	2.8
1945-46	77.1		9.1	62.0	93	125	223	343	397	0.05	2.8
1946-47	76.1	1.96	9.9	62.8	89	120	230	335	388	0.05	2.3
1947-48	77.3	2.98	9.8	62.0	94	128	235	339	391	0.06	2.6
1948-49	77.1	2.95	10.1	62.0	88	120	229	335	393	0.06	2.8
1949-50	76.0	2.27	10.2	62.2	95	123	227	338	395	0.05	1.7
1950-51	77.0	2.41	10.5	63.1	89	120	227	341	398	0.06	1.4
1951-52	78.0	2.46	10.6	62.1	98	123	223	338	390	0.06	1.5

TABLE 9
Seasonal Average Analysis
Regular Gasolines
1939 - 1952

Year	Octane Number	T.E.L.	V.P.	Gravity	Distillation Range					Sulphur	Gum
					T.B.P.	10%	50%	90%	E.P.		
SUMMER GASOLINES											
1940	69.9		8.7	60.0	100	141	249	360	404	0.06	0.9
1941	70.8		8.1	59.1	92	138	262	362	403	0.06	2.0
1945	69.8		6.9	59.1	98	140	247	355	402	0.04	2.7
1946	72.9		8.3	60.9	96	131	239	342	395	0.05	5.6
1947	72.5	1.63	7.6	60.5	95	137	242	343	397	0.06	4.7
1948	73.9	2.12	8.5	60.3	96	132	247	345	397	0.06	3.4
1949	71.8	1.39	8.6	59.6	93	132	245	346	401	0.05	6.5
1950	74.0	2.22	8.4	60.5	97	133	241	345	398	0.06	2.1
1951	74.1	1.59	8.9	60.8	95	131	236	340	392	0.05	1.6
1952	76.2	2.08	8.3	59.7	100	137	242	345	392	0.06	1.4
WINTER GASOLINES											
1939-40	71.2		10.3	62.3	93	131	241	356	401	0.07	1.9
1944-45	70.2		8.9	60.1	92	127	247	353	408	0.06	3.0
1945-46	72.0		8.7	60.6	95	131	236	347	400	0.05	3.4
1946-47	72.9	1.46	9.3	61.4	91	125	238	340	393	0.05	3.5
1947-48	73.5	1.98	10.1	61.8	93	128	241	339	391	0.06	2.1
1948-49	73.7	2.35	9.5	60.8	90	128	244	336	391	0.05	2.8
1949-50	73.3	1.75	10.5	61.1	94	125	242	346	394	0.05	1.4
1950-51	74.8	2.15	10.8	62.1	89	118	236	340	394	0.05	1.4
1951-52	74.7	1.31	10.8	61.7	99	125	230	334	390	0.06	1.1

OCTANE RATINGS AND TETRAETHYL LEAD PREMIUM AND REGULAR GASOLINES



Appendix I

Alberta Standard Specifications for Gasoline

STANDARDS

37. In this part and the Schedule A attached, unless the context requires a contrary meaning:-

(a) "Gasoline" means and includes volatile hydrocarbon fuel suitable for use in the lighter internal combustion engines, requiring a carburent fuel, used in motor vehicles; but does not include material known as aviation fuel, nor the heavier fuels in the classes known as kerosene, engine distillate and other fuels suitable only for use in tractors and heavy engines.

(b) "Minister" means the Minister of Industries and Labour.

(c) "Summer Gasoline" means the gasoline normally sold in the months of May to September (inclusive).

(d) "Winter Gasoline" means the gasoline normally sold in the months of November to March (inclusive).

38.(a) There is hereby established within the Province two grades of gasoline, namely "Premium" and "Regular" in accordance with the standards set out in Schedule A attached hereto.

(b) No gasoline shall be sold or offered for sale as "Premium" gasoline unless the said gasoline complies in every respect with each and every of the specifications for "Premium" gasoline set out in Schedule A attached hereto.

(c) No gasoline shall be sold or offered for sale as "Regular" gasoline unless the said gasoline complies in every respect with each and every of the specifications for "Regular" gasoline set out in Schedule A attached hereto.

(d) No person shall sell or offer for sale by retail any gasoline other than "Premium" or "Regular" gasoline as established by the standards set out in Schedule A attached hereto, or blended gasoline in accordance with Section 39 below.

39. No blend of gasoline with benzol and/or alcohol which fails to meet with the requirements of the standard specifications set out in Schedule A shall be sold or offered for sale until the specification for its manufacture has been submitted to and approved by the Minister.

40. Whenever gasoline is sold or offered for sale a plate or sign clearly indicating to the customer the grade of the gasoline sold or offered for sale must be conspicuously displayed on the gasoline pump or other container from which the gasoline is supplied to the customer. The said gasoline grade plates or display signs shall be of a type and design approved by the Minister.

41. Whenever it appears to the satisfaction of the Minister that the wholesale or retail vendor of gasoline has failed to maintain the standard specifications hereby prescribed, the wholesale or retail license of the vendor, as the case may be, may be suspended or cancelled by the Minister.

42. No gasoline or naphtha which has a Reid vapour pressure exceeding the values set forth in the standard specifications hereby prescribed shall be sold or offered for sale within the Province.

43. All "Premium" gasoline shall be coloured red, and no gasoline other than "Premium" shall be so coloured.

44. All "Regular" gasoline shall be coloured a distinctive colour, other than red. Such distinctive colour shall be registered with and approved by the Minister, and no other gasoline than "Regular" shall be so coloured.

45. "Summer Gasoline" as set out in the said Schedule A is gasoline intended for sale in the months of May to September (inclusive). "Winter Gasoline" as set out in the said Schedule A is gasoline intended for sale in the months of November to March (inclusive).

46. During the periods in which the changes are being made from summer to winter gasoline and the reverse, that is normally during the months of October and April, a gasoline will be regarded as satisfactory if it complies with either the winter or summer specification for its grade.

47. The standard specifications for gasoline as shown in Schedule A may be modified from time to time as found necessary by the Minister but such modifications shall not become effective until ample notification has been given to the operators concerned.

SCHEDULE A

STANDARD SPECIFICATIONS FOR GASOLINE

1. Requirement Specific for Premium Gasoline

(a) Octane Number: The octane number shall not be less than 76 as determined by the C.F.R. Motor Method of A.S.T.M. procedure D-357.

2. Requirement Specific for Regular Gasoline.

(a) Octane Number: The octane number shall not be less than 72 as determined by the C.F.R. Motor Method of A.S.T.M. procedure D-357.

3. Requirements Common to both Premium and Regular Gasoline.

(a) Appearance: The gasoline shall be clear i.e., free from undissolved water and suspended matter.

(b) Corrosion: The gasoline shall pass the test for corrosion (A.S.T.M. procedure D-130).

(c) Vapour Pressure: The vapour pressure as determined (A.S.T.M. procedure A-323) shall not exceed 10 lbs. for Summer Gasoline and 13 lbs. for Winter Gasoline, except that a vapour pressure one pound greater shall be permitted in each case at the refinery or other point of wholesale delivery.

(d) Sulphur: The total sulphur content as determined (A.S.T.M. procedure D-90) shall not exceed 0.15 per cent by weight.

(e) Gum: The gum content as determined (A.S.T.M. procedure D-381) shall not exceed 7 mg. per 100 ml. In the presence of top cylinder lubricant or solvent oil the modified test procedure of the Canadian Government Specifications Board (C.G.S.B.) method 3-GP-0 Section L0.2 shall be employed.

(f) Freezing Point: For winter gasolines only: The freezing point of the fuel, as indicated by the initial formation of solid matter, shall not be higher than minus 60°F. (minus 51°C.). The method of determination shall be as in C.G.S.B. specifications 3-GP-1.

(g) Tetraethyl Lead: The tetraethyl lead content as determined (A.S.T.M. procedure D-526) shall not exceed 3.6 ml. per Imperial Gallon.

(h) Distillation Range: The distillation Range shall be as follows:

	Temperature in °F.	
	Summer	Winter
Not less than 10% of the fuel shall be evaporated at	155	130
Not less than 50% of the fuel shall be evaporated at	260	250
Not less than 90% of the fuel shall be evaporated at	370	370

(1) The distillation range shall be determined by A.S.T.M. procedure D-86.

(2) The phrase used above, "Not less than 10% of the fuel shall be evaporated at 155°F." is equivalent to the phrase "10% of the fuel shall evaporate at a temperature not higher than 155°F".

(3) For the purposes of the distillation specification the volume evaporated at any temperature shall be taken as the volume collected plus the distillation loss as determined at the end of the test.

(4) Distillations may be made at any elevation provided that the observed temperatures are corrected to the temperatures that would presumably have been observed if the distillation had been made at normal barometric pressure at sea level.

(5) The observed distillation temperatures may be corrected for the effect of difference between actual barometric pressure and normal pressure at sea level by means of the corrections in the following table "A".

TABLE "A"

TABLE OF CORRECTIONS FOR DISTILLATION DATA TO ADJUST FOR
VARIATIONS OF BAROMETRIC PRESSURE FROM STANDARD (29.92 inches)

Corrections to be added - in Degrees Fahrenheit						
Barometric Pressure in Inches of Mercury	Observed Temperatures of Distillation in Degrees Fahrenheit					
	100 to 149°	150 to 199°	200 to 249°	250 to 299°	300 to 349°	350 to 399°
25.60 to 25.79	8	8	9	9	10	11
25.80 to 25.99	7	8	8	9	10	10
26.00 to 26.19	7	7	8	9	9	10
26.20 to 26.39	6	7	8	8	9	9
26.40 to 26.59	6	7	7	8	8	9
26.60 to 26.79	6	6	7	7	8	8
26.80 to 26.99	5	6	6	7	7	8
27.00 to 27.19	5	5	6	6	7	7
27.20 to 27.39	5	5	5	6	6	7
27.40 to 27.59	4	5	5	5	6	6
27.60 to 27.79	4	4	5	5	5	6
27.80 to 27.99	4	4	4	5	5	5
28.00 to 28.19	3	4	4	4	4	5
28.20 to 28.39	3	3	3	4	4	4
28.40 to 28.59	3	3	3	3	3	4
28.60 to 28.79	2	2	3	3	3	3
28.80 to 28.99	2	2	2	2	2	3

4. The tests to be made under the foregoing specifications shall be made on the gasoline as sold, and shall, unless otherwise specified therein be made in accordance with the current procedures for such tests adopted, or tentatively adopted by the American Society for Testing Materials (A.S.T.M.) or by the Canadian Government Specifications Board (C.G.S.B.) respectively, or modification of such tests where said modification is introduced for convenience and does not affect the results obtained.

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